



**DEPARTMENT OF THE NAVY**  
CHIEF OF NAVAL EDUCATION AND TRAINING  
250 DALLAS ST  
PENSACOLA FLORIDA 32508-5220

CNETINST 1500.28  
T2B

19 JUL 1996

CNET INSTRUCTION 1500.28

Subj: TOTAL QUALITY INSTRUCTION

Ref: (a) CNETINST 1540.16  
(b) NAVEDTRA 135A  
(c) CNETINST 1550.10A  
(d) CNETINST 1540.13A  
(e) CNETINST 5311.1C

Encl: (1) Enhanced Learning Options  
(2) Restructured Lesson Components  
(3) Example of Compressed Schedule  
(4) Factors Which Impact Implementation of Compressed Schedule  
(5) Guidelines for Determining '+2' Ratios for Contractor Taught Course

1. Purpose. To provide implementation guidance for the TQI Program within Naval Education and Training Command (NAVEDTRACOM) school-houses.

2. Definitions

a. Total Quality Instruction (TOI). A combination of management initiatives and alternative instructional options which are directed at maximizing the learning environment of the students to reduce attrition and improve learning.

b. At-Risk Students. Students who either have failed a test or have failed to progress in the course at a rate or to a level consistent with their potential as noted in their ASVAB scores or previous classroom or laboratory performance.

c. '6+2' Compressed Schedule. An instructional schedule consisting of six continuous hours of classroom or laboratory instruction and two hours of enhanced instruction. The schedule is a restructuring of the standard 8-hour instructional day. Instruction is compressed into a 6-hour block. A 2-hour block provides remedial or reinforcement training geared to the needs of the individual at-risk students or enrichment materials for students who volunteer.

d. Enhanced Learning Options. Instructional materials and strategies designed primarily for at-risk students but may be used for initial, remedial, or refresher training. (See enclosure (1) for discussion of the individual options.)

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e. Learning Resource Center (LRC). A central location for instructional material used for initial, remedial, or refresher training designed to be completed by students working individually. LRCs will usually contain such items as interactive courseware, video or audio tapes, and printed materials.

### 3. Background

a. Investigations into the instructional process indicated that the standard 8-hour lockstep lecture method is not always responsive to student diversity represented by different learning rates and styles.

b. A pilot program conducted in the ET 'A' school in the early 1990's focused on improving the 'learning process' by dividing the instructional day into a 6-hour block and a 2-hour block. Without changing course 'objectives, instructional material, or tests, initial instruction was provided in a concentrated uninterrupted 6-hour block during the morning when most students are well rested and alert. Proactive interventions for at-risk students and enrichment for volunteers was provided in a 2-hour block immediately after lunch when all the expert resources of the school were available to provide required help. Enclosure (2) provides a pictorial representation and discussion of how the components of an individual lesson topic may be restructured under the '6+2' schedule.

c. This '6+2' environment provided a variety of instructor-guided activities which appealed to student preferences and offered the best fit for each student. Based on classroom feedback and early diagnosis students were assigned to one-on-one tutoring, small group tutoring/cooperative learning sessions, seminars covering key concepts and course fundamentals, laboratories, and in the LRC with computer-based tutorials. Desktop simulators which provide accurate representation of laboratory circuits and equipment were later added to the LRC. Enclosure (3) contains an example of a compressed schedule with multiple enhanced learning options.

### 4. Discussion

a. As the initiatives identified during the ET 'A' pilot program were expanded to other courses, some commands determined that they were unable to compress all their course instructional days into the '6+2' schedule. They used a combination of the traditional 8-hour schedule and the compressed 6-hour schedule where appropriate. Still other courses were not able to compress any instructional days and remained on the standard 8-hour schedule while implementing some of the enhanced learning options into their remedial program. The combination of proactive initiatives undertaken to reduce attrition and setback rates and improve training achievement with or without the compressed '6+2' schedule are collectively referred to as TQI.

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b. Commands have consistently determined that implementation of a compressed '6+2' schedule or a combination of '6+2' and 8-hour schedule requires the same number of instructors as under the standard 8-hour schedule. Implementation of enhanced learning options under either the compressed or standard schedules is impacted by the availability of resources to develop and implement them. Commands usually begin by implementing options such as small group and peer tutoring, laboratories, and seminars all of which require no additional resources. Interactive courseware and desktop simulation are not as widely implemented because they are usually labor intensive to develop and require hardware/software which may not be readily available or require a long lead time to develop/procure.

c. The compressed '6+2' schedule has been implemented in courses which run multiple shifts. In these situations, the '+2' portion may occur either prior to or after the 6-hour block depending on availability of classrooms and equipment. But under either configuration, the integrity of the 6-hour block is retained. Enclosure (4) contains factors which should be considered when determining whether to implement a '6+2' schedule.

d. Benefits from implementing TQI have included:

- (1) Reductions in nonacademic as well as academic attrition.
- (2) Reductions in the number of Academic Review Boards, reductions in setback rates.
- (3) Increases in test scores.
- (4) Improved laboratory performance and increases in grade point average (GPA).

e. In some courses, students receive additional drill and practice on equipment unique to their eventual duty station. In others, students have been able to complete Interactive Courseware (ICW) providing additional training which leads to better prepared fleet sailors without an increase in resources.

## 5. Policy

a. All practical efforts will be made to improve the training provided in the NAVEDTRACOM schools. Military readiness, sustainability, course objectives, and safety will not be compromised.

b. Course Master Schedules will be developed for an 8-hour instructional day in accordance with references (d) and (e). New or revised courses will be validated using a standard 8-hour instructional day to determine instructor and equipment requirements. For courses using '6+2' which are taught by military instructors, a separate master schedule identifying the compressed schedule is not required. Each course may develop an inhouse schedule for the '+2' time which may vary from one class to the

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next based on the needs of the students. Military instructors should be made available in sufficient numbers to cover all the enhanced learning options.

c. For courses taught by contract instructors, a compressed master schedule will be developed and included in the statement of work (SOW). The '6+2' schedule will be based on the Course Master Schedule prepared during validation. At no time will the number of contract instructors exceed the number of instructors calculated from the Course Master Schedule in accordance with reference (e). Ratios for the '+2' time will be developed using the guidelines contained in enclosure (5).

d. Consistent with reference (a), all students in class "A" schools and apprentice training will muster prior to commencing '+2' portion of a '6+2' compressed schedule. Students not requiring remediation or reinforcement training may be released to complete personal business or keep required appointments during this period. All students will muster again for required Basic Military Training and regularly scheduled physical conditioning.

## 6. Action

a. CNET and Functional Commanders. Monitor implementation and assess the effectiveness of TQI initiatives to ensure course resources are being used efficiently and course objectives are not compromised.

### b. Commanding Officers/Officers in Charge of Training Activities

(1) Review Training Quality Indicators per reference (b) to identify courses which could benefit from the TQI program.

(2) Implement TQI in all courses deemed appropriate, including those for which they are not the Course Curriculum Model Manager (CCMM). This is permissible because course content, course length, and course resources are not affected.

(a) Develop written course specific guidance on how the TQI management and enhanced learning options are to be employed. This document should be retained as part of the course audit trail.

(b) Implement enhanced learning options within current resources. Alternatives which require additional resources should be identified through procedures established in reference (c).

(c) Share with all teaching sites any materials developed to support the enhanced learning options for a course.

(3) Implement a compressed work schedule, inappropriate, as part of the TQI program. Curriculum Control Authority (CCA) and CCMM concurrence is not required as long as the course objectives, course sequence, Instructor Guide, Trainee Guide, written and performance tests, and test standards remain the same.

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(a) Inform the CCMM and CCA of intent to implement the compressed schedule. The Course Master Schedule and Master Schedule Summary are management and resource documents and shall reflect requirements under the 8-hour schedule.

(b) Coordinate with support service providers (e.g., medical, dental, legal, to determine impact on provider's workload and availability of support services to students and staff under the new schedule).

(c) Implement compressed schedule only when enhanced learning options for at-risk students are available. The number and type of options will be determined by the resources available.

(4) For military taught courses, use instructors not required to support enhanced learning options under a compressed schedule to conduct curriculum maintenance, develop materials for the enhanced learning options, complete assigned collateral duties, and complete in-service training requirements.

(5) Track Training Quality Indicators to assess the effectiveness of any TQI program implementation. Effectiveness indicators should be included as part of supporting documentation for resource requests.

(6) Coordinate with the Contracting Officer's Representative (COR) or appropriate contract representative prior to implementation of a compressed schedule or enhanced learning option to ensure that the program requirements and instructor requirements are fully explained in the contract SOW.

c. Commanding Officer, Naval Education and Training Program Management Support Activity

(1) Serve as TQI Program Manager. Provide training on the TQI program. Track implementation of TQI initiatives and assess effectiveness across the NAVEDTRACOM.

(2) Coordinate with the command's COR or appropriate contract representatives TQI program requirements and instructor requirements to ensure that they are fully explained in the contract SOW.

d. Commanding Officers and Officers in Charge of NAVEDTRACOM support activities explore management alternatives which will allow the greatest flexibility to the commanding officers of the training activities in implementing TQI initiatives.

  
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**ENHANCED LEARNING OPTIONS**

1. The Enhanced Learning Environment offers assistance to at-risk students by providing a variety of learning options which addresses the student's individual need and learning styles. These options are most beneficial when provided at reasonable hours and when fully staffed with qualified instructors. The point in having a menu of choices is to appeal to a range of preferences, and to offer the best possible fit for each student.

a. **Tutoring.** There are two types of tutoring - instructor tutoring and peer tutoring.

(1) **Instructor Tutoring.** Instructors provide one-on-one remedial instruction for a student. Instruction may include discussions of particular points with which a student is having difficulty, demonstrations and additional problems or examples.

(2) **Peer Tutoring.** Peer tutoring happens as a natural consequence of being teamed up with one or two other students to discuss questions or solve problems. A variety of tools may be used to focus these discussions including prepared question packages which are tied to each objective or to individual discussion points. These questions should be open-end, short-answer, or discussion type. Evaluation standards/answers should be developed to ensure consistence between instructors. Students working in small groups of two to three should attempt to answer three to five questions before the instructor evaluates the answers. The instructor provides required remediation before assigning follow-on questions or other learning options. A single instructor can usually monitor three groups of three students each.

b. **Seminars.** Often student difficulties are the result of not understanding fundamental principles or topics. Seminars can be developed from existing Instructor Guide Lessons by expanding the detail provided and increasing the number and types of examples and illustrations used. To ensure that there is maximum student interaction with the instructor, the seminar should be limited to six students per session.

c. **Laboratories.** Labs can be open to allow students to complete unfinished Job Sheets. Students experiencing difficulty in meeting performance objectives may be assigned additional Job Sheets or provided the opportunity to do additional troubleshooting. Safety requirements will determine the minimum number of instructors.

d. **Models and Simulations.** Although not usually used as standalone learning alternatives, models and simulations can be used in conjunction with seminars, individual and small group tutoring, laboratories, and LRC options.

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e. **LRC.** The LRC may contain a variety of alternative learning options ranging from printed material to interactive courseware. Most products will be developed for individual rather than group use. LRC instructors can usually manage 10-15 students. The LRC support allows the instructor to answer student questions, assess their progress, and make recommendations/assign materials which are most appropriate for the student and the topic area.

(1) **Printed Materials.** Printed material options could include programmed text, reference manuals, operational bulletins, instructions, directives, textbooks, and copies of annotated Instructor Guides.

(2) **Video Tapes.** Video tapes may range from in-house productions to commercially developed material. Tapes can be as simple as the best instructor teaching a lesson or more elaborate productions which require the special services offered by the Media Resource Centers. Tapes can be obtained through the Media Libraries at San Diego (activities west of the Mississippi River) and Norfolk (activities east of the Mississippi). The catalog listing is available via the Internet through the Navy's Home Page or in print format. The command's Media Point of Contact (POC) can assist in locating video products by searching the Defense Automated Visual Information System (DAVIS). The Media POC can coordinate purchase of commercial tapes if the topics are not available through these other sources.

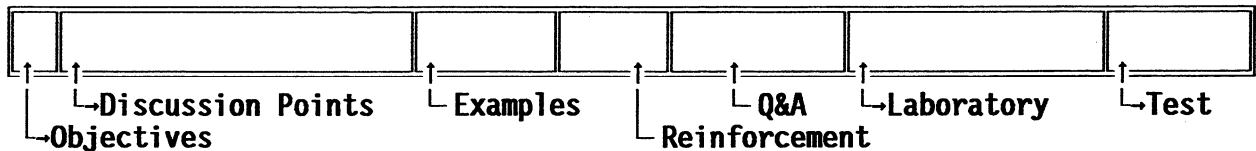
(3) **Audio Tapes.** Like video tapes, audio tapes range from local productions to commercially developed material. Lectures can be taped for playback. Recording of sounds can be developed for recognition drill and practice.

(4) **Interactive Courseware (ICW).** ICW may be developed for initial or remedial training. Existing government produced ICW materials can be located via the Defense Instructional Technology Information System (DITIS). New courseware may be developed in-house, by other government agencies, or by contractors. Some ICW is available at no cost via the Internet.

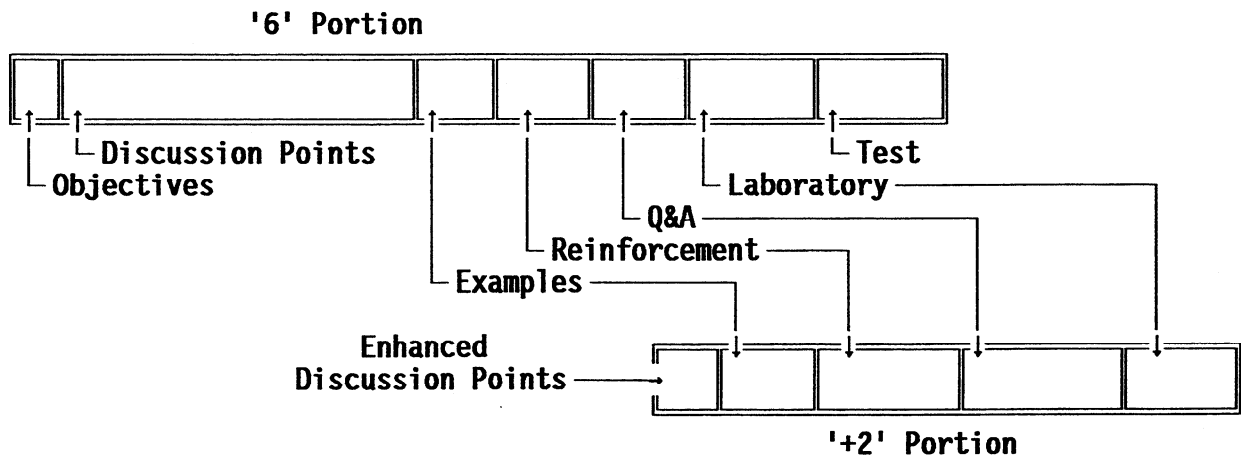
(5) **Desktop Simulation (DTS).** DTS may be developed for initial, reinforcement, or remedial training. Simulations will usually be either a piece of equipment or a subcomponent such as a circuit card. Existing government produced ICW materials can be located via DITIS. New DTS may be developed in-house, by other government agencies, or by contractors.



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**RECONSTRUCTING THE LESSON COMPONENTS UNDER '6+2'****TOPIC COMPONENTS UNDER THE STANDARD 8-HOUR DAY**

1. Each topic will consist of objectives, discussion points, examples, reinforcement, questions and answers, and tests. It may also have a performance element which is practiced in a laboratory. During validation the number of examples, reinforcement and length of the practice sessions are determined. The number of examples, the number and type of reinforcing 'sea stories', and the amount of time devoted to questions and answers are determined by what the majority of the students require to achieve the objectives. The length of the lab is also a function of the amount of time the majority of students require to complete the job sheets. The topic elements may be in one or more lesson topics when the course is actually sequenced. All students are given all examples, all reinforcement, and the same length of time to complete the job sheets.

**TOPIC COMPONENTS UNDER THE '6+2' SCHEDULE**

2. When a course is compressed under the '6+2' schedule, the topic is not compressed as much as it is restructured. The topic still contains the same objectives, discussion points, and tests. It will also have the same job sheets and requirement to practice and demonstrate the same level of proficiency. What differs is the number of examples and reinforcements and the time allocated for questions and answers. The number is adjusted to the requirements of the upper portion of the class vice the middle of the class. The length of time scheduled for the lab may also be

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reduced. All students are given this condensed level of coverage. The instructional time saved between the original lesson topics and the compressed is shifted to the '+2' portion of the day. Examples, reinforcement, and extended periods for questions and answers are provided only to those students who require the additional assistance. Sometimes this requires breaking the discussion points down into smaller segments or pointing out relationships between points which might otherwise be assumed to be obvious. Additional time might be required to complete the lab or additional practice required to reach proficiency.

3. Achieving these goals may require that a variety of learning options be provided which respond to the student's individual needs and provide additional learning reinforcement.

**EXAMPLE OF  
COMPRESSED SCHEDULE FOR A CLASS "A" COURSE**

0500	Early Morning LRC & Simulator Session (Optional)				
0600	All Students. Six contiguous Classroom/Laboratory hours. • Same Instructor Guide • Same Trainee Guide • Same Performance/Lab Sessions • Same Performance and Knowledge Tests				
1200	Meal Break				
1300	Students requiring remediation and reinforcement				
1500	Evaluation • Diagnostics • Counseling • Mentoring	Seminars • Small Group (max 6) • Fundamental topics	Tutoring • Individuals 1 to 3 small groups	Laboratory • Open Labs • Job Sheets	LRC • Videos • Interactive Courseware • Print Media • Simulators
1800	GMT/PT for all students				
2000	Late Evening LRC (Optional) • Review day's materials • Advance organizer for next day's lessons • Simulated troubleshooting • Review prior to test				

Enclosure (3)

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**FACTORS WHICH IMPACT IMPLEMENTATION  
OF COMPRESSED SCHEDULES**

1. There are several advantages to restructuring the instructional day to include a 6-hour block and a 2-hour remedial or reinforcement block.

a. Students who are able to learn the material with limited numbers of examples and reinforcement are able to take care of personal business, required appointments, study, and complete enrichment materials during the 8-hour instructional day. These students report being less bored and more satisfied with the course and acknowledge that they must study to maintain the same progress in the course.

b. Students who require more examples or reinforcement are able to obtain this in a more individualized environment which is responsive to their individual needs. The students are still able to take care of personal business and required appointments.

c. The number of instructors, facilities, and equipment available when all the instructional staff is available during the '+2' portion far exceeds that available during the traditional after-hours and at-night remedial programs.

2. Courses should not be converted from the standard 8-hour instructional day to the compressed '6+2' schedule without careful analysis of all factors which might impact or be impacted by the change in schedule. Some of these factors are under the control of the commanding officer while others which may be the responsibility of other commands or agencies which support more than the course staff and students.

3. Course factors which should be considered before deciding to implement a '6+2' schedule include but are not limited to:

a. Management Requirement. To maximize the benefits of the compressed schedule, the 6-hour block should be uninterrupted with long breaks such as meal breaks occurring after or before. Most activities will elect to start the instruction early in the morning. This causes a shift in the instructor's work hours. If management requirements cannot accommodate this shift, compression may not be appropriate. Without this accommodation the instructor's workday increases by several hours which causes increased instructor dissatisfaction and will impact the ability of the instructors to provide the student the level of assistance required.

b. Course Revision. Courses undergoing a revision should not be considered for conversion to the '6+2' schedule until after the revised course has been validated under the 8-hour schedule.

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c. Course Length. Courses which are less than 80 hours in length generally should not be compressed. The reason a course is compressed is to provide the opportunity for remedial instruction. Courses less than 80 hours often do not have more than one examination occurring at or near the end of the second week. These courses generally do not experience high attrition or setback rates. It is the potential savings generated by reducing these rates which offset the cost of developing alternative learning options. Exceptions to this generality are courses where both student populations have vast differences in experience or skill levels. In such a situation, the '+2' period can be used to compensate for these differences by providing additional instruction or practice.

d. Contract Instructors. Compressed courses are being taught by contract instructors under contracts which clearly delineate the requirement in the contract statement of work. Converting courses to a compressed schedule after the contract has been awarded will require a modification to the contract and must be coordinated with the Contracting Officer's Representative. Such changes may result in increased contracting costs which must be approved prior to execution.

e. Laboratory Sessions. Laboratory sessions can be compressed but not as easily as classroom topics. The type of lab and availability of lab equipment will determine if the lab can be compressed.

(1) Individual. If an entire class can work simultaneously on individual pieces of equipment, the laboratory session may be a candidate for compression. In this situation the student who does not complete the laboratory job sheet could return for the '+2' session to complete any unfinished steps. The laboratory session should not be compressed to the point that the majority of students are unable to complete the job sheet in the allotted time.

(2) Team. If students must function as a team with individual students' performance dependent on cues received from others operating another piece of the system, the laboratory session may not be a candidate for compression. If students can perform their functions without the input from other students, then compression may be possible as students who do not complete all their job steps can stay for the '+2' session. Students may volunteer to fill the other positions during the '+2' session allowing the instructor to concentrate on the at-risk student.

f. Instructor Cross Utilization. When instructors are cross utilized in courses which are in session at the same time, it may be difficult to compress a course. The difficulty may not be alleviated by compressing both courses. Differences in the length of time assigned to topics and the unscheduled nature of breaks under a compressed schedule may mean instructors are not available at the point at which they are required in the second course.

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g. Facilities Cross Utilization. When classrooms, laboratories, or equipment are cross utilized in courses which are in session at the same time, it may be difficult to compress a course. The difficulty may not be alleviated by compressing all courses. Differences in the length of time assigned to topics and the unscheduled nature of breaks under a compressed schedule may mean facilities are not available at the point at which they are required in the second course.

h. Guest Speakers. If the course is heavily dependent on guest speakers, who are difficult to schedule or present topics which may vary in length from class to class, it may be difficult to compress the topic or course. The exception is when the guest speakers can be concentrated in a few segments. In this situation, a compressed schedule can be followed for the other portions of the course and a standard 8-hour schedule followed when a guest speaker is scheduled.

4. Non-course factors which may impact the ability to compress or affect the efficiency of the compressed schedule usually involve support services. If the support services agency supports more than the course or even the command, they may not be able to adjust either procedures or hours of operation. The command should be sensitive to particular dates or periods during the month or quarter when the support services agency can more easily accommodate shifts in hours or procedures. Being sensitive to these issues often makes these changes easier to accomplish for all parties involved. These non-course factors include, but are not limited to, the following:

a. Messing Facilities. Some messing facilities are set up under the assumption of staggered release times for students. The facilities cannot accommodate a major shift in the number of students to be served at any one time. The hours of operation at training activities are usually established around the standard 8-hour instructional day. Shifting opening times to accommodate earlier class starts requires rescheduling or increasing staff. If the facility is run by contract, converting to hours of operation after the contract has been awarded will require a modification to the contract and must be coordinated with the Contracting Officer's Representative. Such changes may result in increased contracting costs which must be approved prior to execution.

b. Medical and Dental. Early morning appointments have traditionally been set aside for staff and student personnel. Revising this procedure to accommodate a shift in a small portion of the population supported by the medical and dental hospitals and clinics may not be an efficient use of their staff. Even if they are able to accommodate the shift in student population, it will not completely eliminate students being removed for appointments with specialists or medical procedures.

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c. Personnel Support Detachments (PSD). The number of courses and the student population involved will determine the impact on PSD. A small change in student population can usually be absorbed. Shifting the majority of student population usually affects hours of operation although staffing may also be affected.

d. Transportation. Base transportation is usually more of an issue for fleet schools where the student may be coming from a ship to attend the course. In some locations, base transportation does not operate 24-hours a day. The operational hours may start later than the proposed morning course start. The route may also drop students off at the school later than desired. Depending on the population supported, changes might not be possible in either routes or schedule.

e. Barracks Location. It is unusual for barracks location to be a problem. There are situations where the barracks and the school are not located on the same base. Gates between the two bases may have restricted access. Students may be prevented from taking the most direct route to the school if the school hours are shifted. The impact may be minimal or cause a significant increase in transient time for the students. Some of these restrictions may be easily solved whereas others, for security reasons, cannot be changed or require additional staff or waivers to accommodate the early start times.

f. Day Care. This is usually an issue for staff, not students. Many instructors include as part of their daily route dropping children at day care or before-school care facilities. Having instructors report earlier places an increased burden on them and their families even if the facility adjusts the operating hours to receive the early dropoffs. This issue can be seen as a personal problem but can greatly impact instructor satisfaction which can impact their ability to function at the desired level of proficiency.

g. Physical Conditioning Program Facilities. This becomes an issue when physical conditioning programs must adjust to accommodate extremes in weather. Under these circumstances, the physical conditioning program may be conducted in a gym or similar facility. Changing the hours of operations or rescheduling special use periods just for student PT may impact not only the facility staff but other users. Rescheduling may also require more staff if the facility is to maintain the same level of support to other users.



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**GUIDELINES FOR DETERMINING '+2' RATIOS  
FOR CONTRACTOR TAUGHT COURSES**

1. LRCs are used extensively during the '+2' time. If the LRC is manned by contract instructors, the manning must be included in the instructor ratio. The typical ratio for the LRC is 15:1. If the LRC is manned by military personnel or by a separate contract, the manning will not be included in the instructor ratio.
2. During the first days of the course and just prior to the first test, the '+2' time should be spent evaluating the student. This is done through diagnostics such as pretests, counseling, and mentoring. This time may also be used for command and course familiarization, how to study, how to take notes, etc. Instructor ratios should reflect the normal class ratio (i.e., 30:1, 25:1, 12:1, etc.).
3. When the majority of the training provided during the 6-hour day is classroom, the ratio should provide for two instructors during the '+2' time. This does not include LRC requirements but will provide instructors for tutoring and seminars. For example, if the class size is 24, the '+2' ratio should be 12:1; if the class size is 30, the '+2' ratio should be 15:1; or if the class size is 20, the '+2' ratio should be 10:1.
4. When the majority of the training provided during the 6-hour day is laboratory, the ratio should provide one instructor for seminars and tutoring and two instructors for the lab. This does not include LRC requirements. For example, if a class size is 24, the ratio should be 8:1; if the class size is 30, the ratio should be 10:1; if the class size is 20, the ratio should be 7:1. When the number of students seeking assistance in the labs exceeds the normal lab ratio, instructors assigned to seminars or tutoring will be used in the lab.

